

**Amendments to the Claims:**

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1-4. (Canceled)

5. (Currently Amended) A porous honeycomb structure comprising:

a plurality of partition walls containing cordierite as a main component and comprising a porous ceramic having a porosity of 55 to 75% and an average pore diameter of 15 to 35  $\mu\text{m}$ ,

characterized in that pores of the partition walls have a pore distribution represented by the following condition formula (1):

$$L_r > 0.3 \times P/100 + 0.91 \dots (1),$$

"in the above condition formula (1),  $L_r$  means an average developed length ratio obtained by the following equation (2), and  $P$  means a porosity obtained from a total pore volume measured by a mercury press-in type porosimeter, assuming that a true specific gravity of cordierite is 2.52 g/cc:"

$$L_r = L_o/4 \dots (2),$$

"in the above equation (2),  $L_o$  means an average developed length (an average value of lengths including the surfaces of the pores opened in the partition wall surfaces) obtained when using a surface roughness measuring instrument and checking optional ten places on the partition wall surfaces every 4 mm (straight line length ignoring presence of the pores opened in the partition wall surfaces) along the partition wall surfaces with a stylus, and  $L_r$  means the average developed length ~~ratio~~ ratio," and

wherein the pores of the partition walls have a tomographic pore distribution represented by the following condition formula (3) in a partition wall thickness direction:

$$X < -33 \times P/100 + 28 \dots (3),$$

"in the above condition formula (3), X denotes an average value of a primary component amplitude spectrum (F) and a secondary component amplitude spectrum (S) obtained from the following equations (4) and (5), and P means a porosity obtained from the total pore volume measured by the mercury press-in type porosimeter, assuming that the true specific gravity of cordierite is 2.52 g/cc:"

$$\text{---} F = \sqrt{X_{SRe}(1)^2 + X_{SIm}(1)^2} \text{---} \dots (4)$$

"in the above equation (4), F denotes the primary component amplitude spectrum assuming  $k = 1$  in the following conversion equation (6), and  $X_{SRe}(1)$  and  $X_{SIm}(1)$  denote a real part and an imaginary part, respectively, assuming  $k = 1$  in the conversion equation (6):"

$$\text{---} S = \sqrt{X_{SRe}(2)^2 + X_{SIm}(2)^2} \text{---} \dots (5)$$

"in the equation (5), S denotes the secondary component amplitude spectrum assuming  $k = 2$  in the following conversion equation (6), and  $X_{SRe}(2)$  and  $X_{SIm}(2)$  denote a real part and an imaginary part, respectively, assuming  $k = 2$  in the conversion equation (6),"

$$\text{---} X_s(k) = \sum_{n=0}^{255} x(n) \left( \cos \frac{2\pi k}{256} \cdot n - j \sin \frac{2\pi k}{256} \cdot n \right) \text{---} \dots (6)$$

"in the conversion equation (6),  $X_s(k)$  denotes a discrete Fourier transform,  $k$  denotes a degree,  $n$  denotes an integer of 0 to 255 indicating a divided position, when a partition wall section is divided into 256 in order in a thickness direction from a partition wall

outermost surface portion ( $n = 0$ ), and  $X(n)$  denotes an area ratio occupied by a pore portion in a partition wall section region to the divided position of  $n$  to  $n+1$ ."

6. (Canceled)
7. (Previously Presented) The porous honeycomb structure according to claim 5, wherein a thickness of the partition wall is 350  $\mu\text{m}$  or less.
8. (Canceled)
9. (Original) The porous honeycomb structure according to claim 5, wherein a coefficient of thermal expansion at 40 to 800°C is  $1.0 \times 10^{-6}/^\circ\text{C}$  or less.
10. (Canceled)